

AMENDMENT TO THE CLAIMS

Please **AMEND** claims 1 and 15 and cancel claims 2, 3 and 10.

No new matter has been added by the amendment to claim 1. This listing of claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS

1. (Currently amended) An electro-chemical sensor comprising:

at least a first and a second redox system, wherein the first and the second redox systems comprise different redox systems that are sensitive to the same species, and wherein the first and the second redox systems are coupled with a conductive substrate and configured to function in use as a working electrode;

a counter electrode;

a reference electrode

means to apply a varying potential to the working electrode; and

means to detect peaks in a current flowing between the working and counter electrode as the applied voltage is varied, wherein the peaks in the current flowing between the working and counter electrodes are produced by oxidation or reduction of the first and the second redox systems and wherein the first and the second redox systems produce peak current flows at different applied potentials.

2. (Canceled)

3. (Canceled)

4. (Previously presented) The sensor of claim 1 wherein the first and the second redox systems are bonded with or immobilized on the conductive substrate.

5. (Previously presented) The sensor of claim 1 wherein the conductive substrate comprises a carbon-based substrate.

6. (Previously presented) The sensor of claim 1 wherein the conductive substrate comprises a carbon powder substrate.

7. (Previously presented) The sensor of claim 1 wherein the conductive substrate comprises a diamond-based substrate.

8. (Previously presented) The sensor of claim 1 wherein the conductive substrate comprises a multi-walled nanotube-based substrate.

9. (Previously presented) The sensor of claim 1 further comprising:

a detector adapted to measure a redox potential of said first and said second redox system in the presence of the species and to convert measurements into an signal indicative of the concentration of said species.

10. (Canceled)

11. (Original) A downhole tool for measuring characteristic parameters of wellbore effluents comprising an electro-chemical sensor in accordance with claim 1.

12. (Original) A downhole formation sampling tool for measuring characteristic parameters of wellbore effluents comprising an electro-chemical sensor in accordance with claim 1.

13. (Original) A downhole tool for measuring characteristic parameters of wellbore effluents comprising an electro-chemical sensor in accordance with claim 1 mounted onto a permanently installed part of the wellbore.

14. (Previously presented) The sensor of claim 1 wherein one of the first and second redox systems comprises one of an anthraquinone, a phenanthrenequinone and N,N'-diphenyl-p-phenylenediamine.

~~14~~15. (Currently amended) The sensor of claim 1 wherein ~~one of~~ the first and second redox systems are sensitive to H⁺.